Study2a Target Dose Calculations

Muon Collaboration

Phone Meeting

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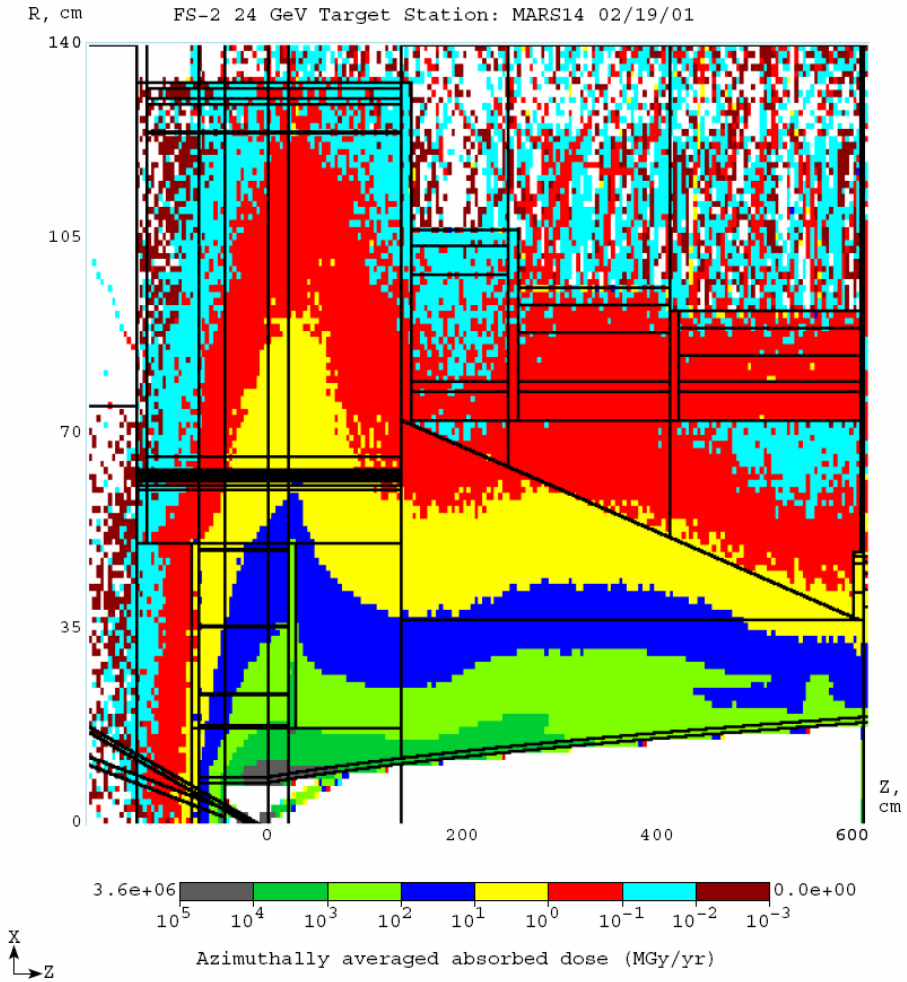
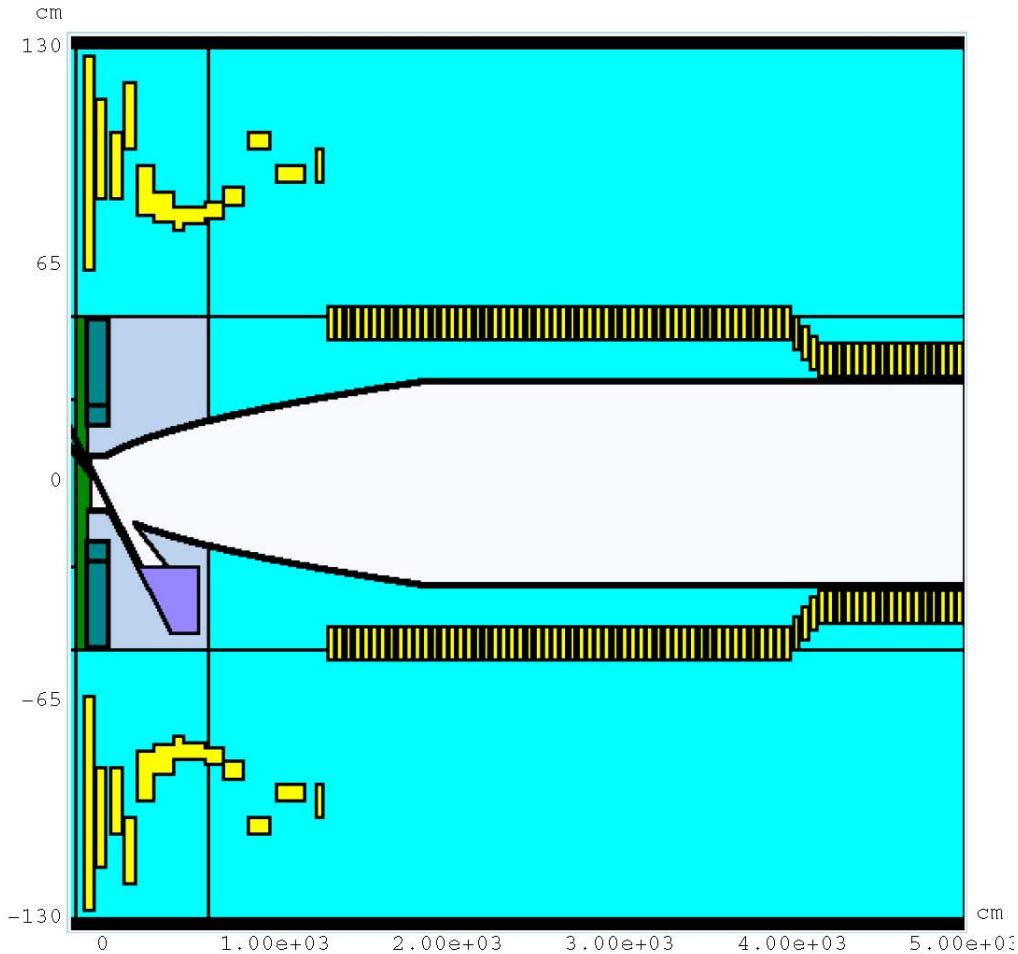
Study2 MARS calculation

N. Mokhov Calculation

- 1 MW 24 GeV proton beam
- 2 x 10^7 s / year
- Peak energy deposition in SC is ~ 8 MGy/yr
- Lifetime for SC is 100 MGy/yr i.e. 12 years for this case



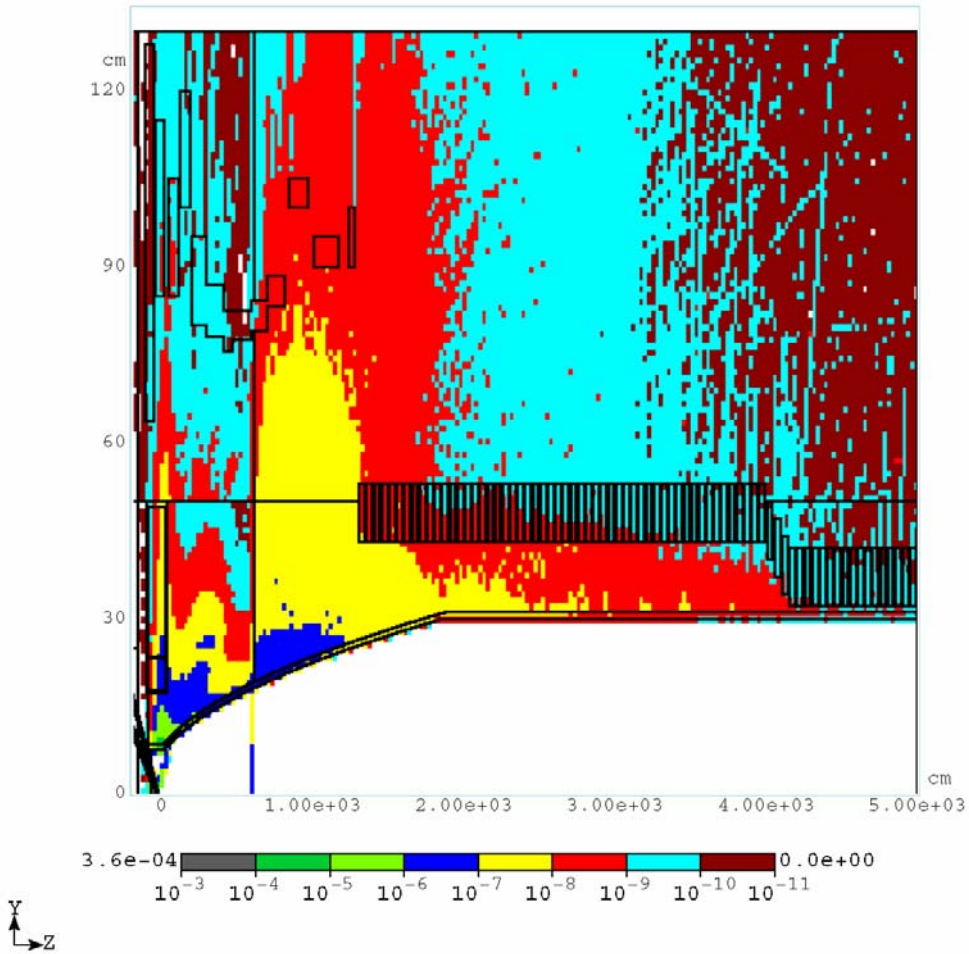
Study2a MARS Dose Calculations



New Superconducting Layout

Tungsten-Carbide Absorber 0-6 m

Total Energy Deposition

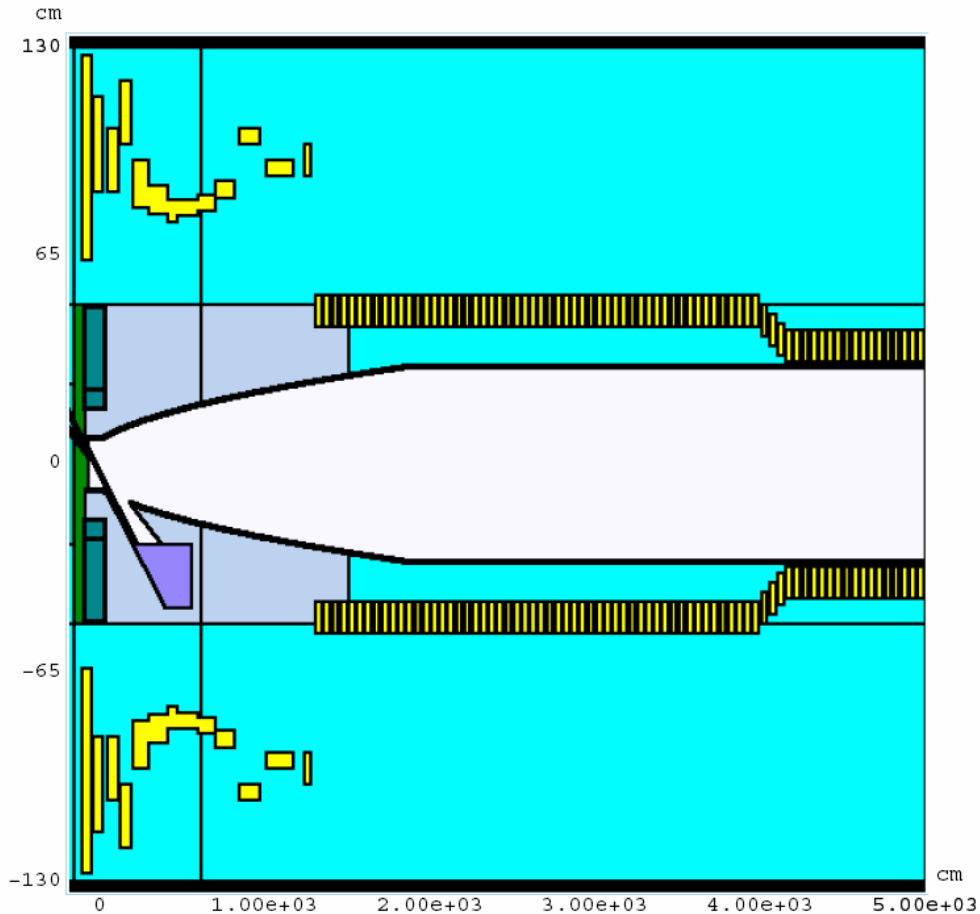


MARS energy deposition in GeV/g/proton

Note: For 1 MW 24 GeV proton beam and 1 x 10^7s we find that 10^{-8} GeV/g/proton is 4 MGy/yr

Peak energy deposition is at the beginning of the SC taper at ~ 5 MGy/yr

Extend W-C shield to 15m



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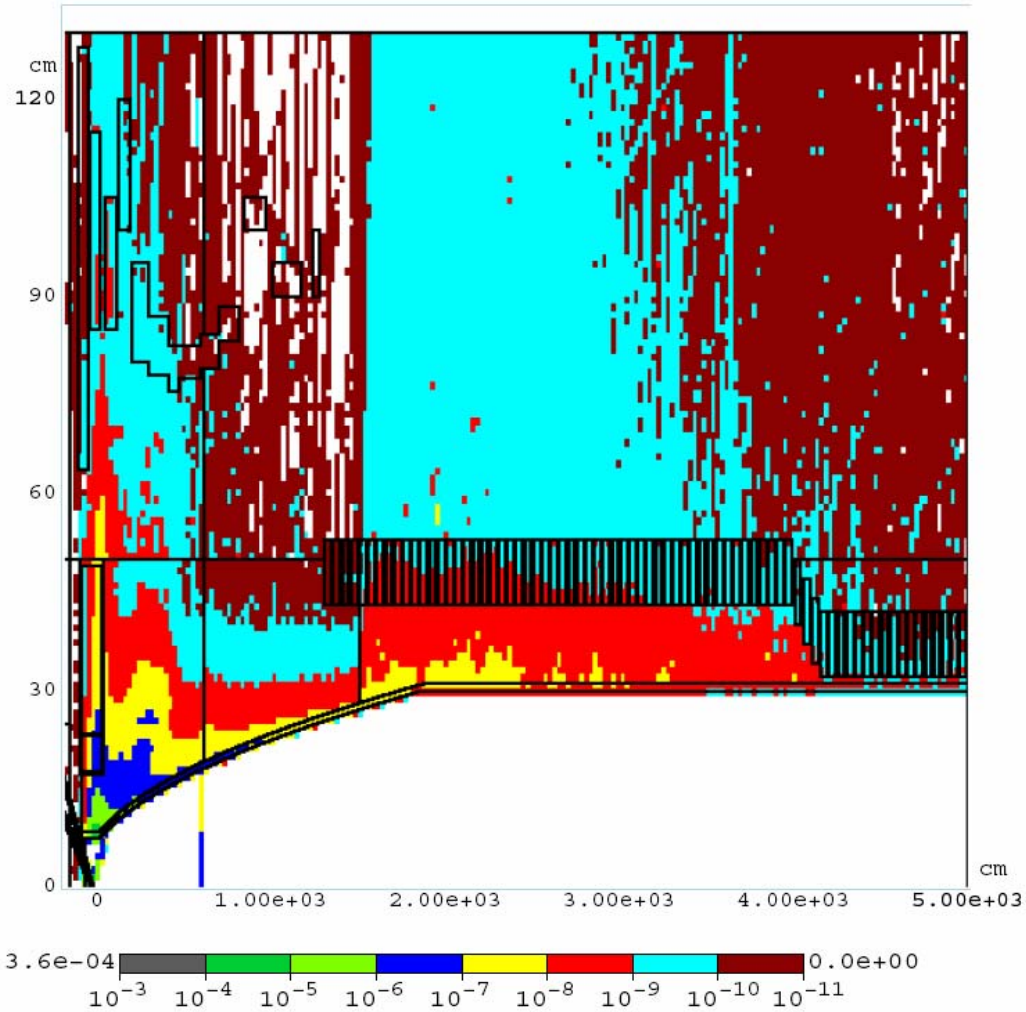
Dose with extended W-C shield



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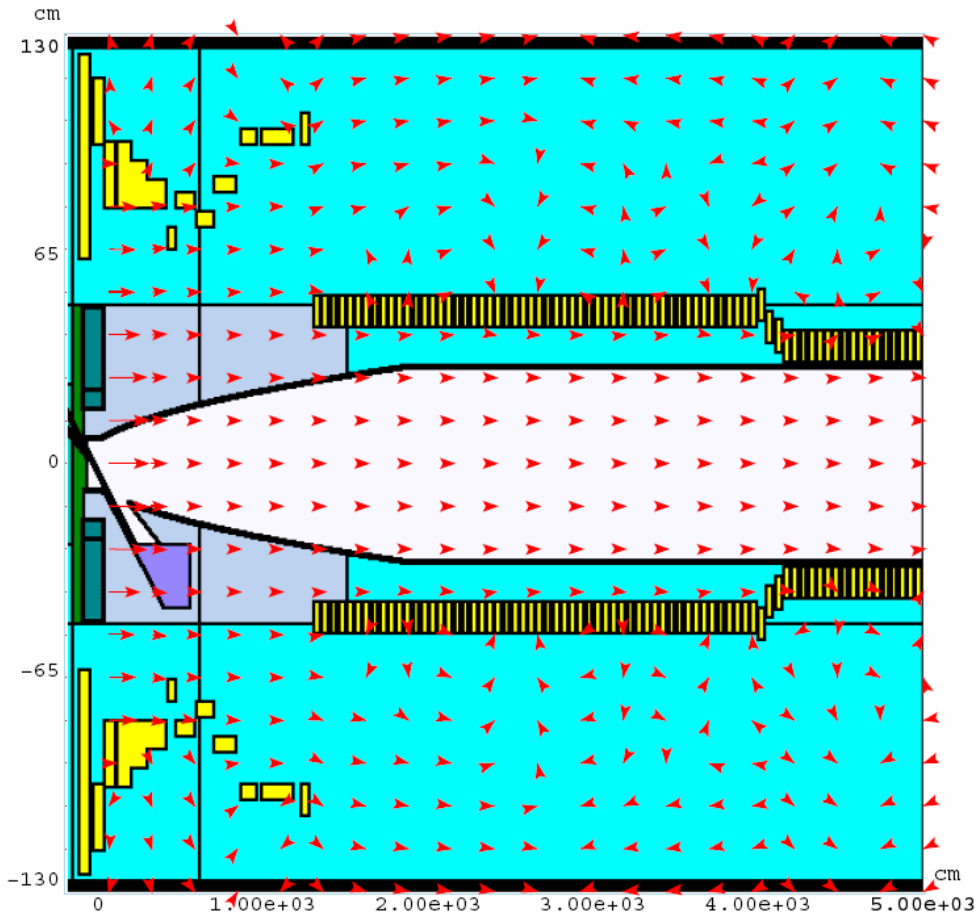
Latest SC coil configuration



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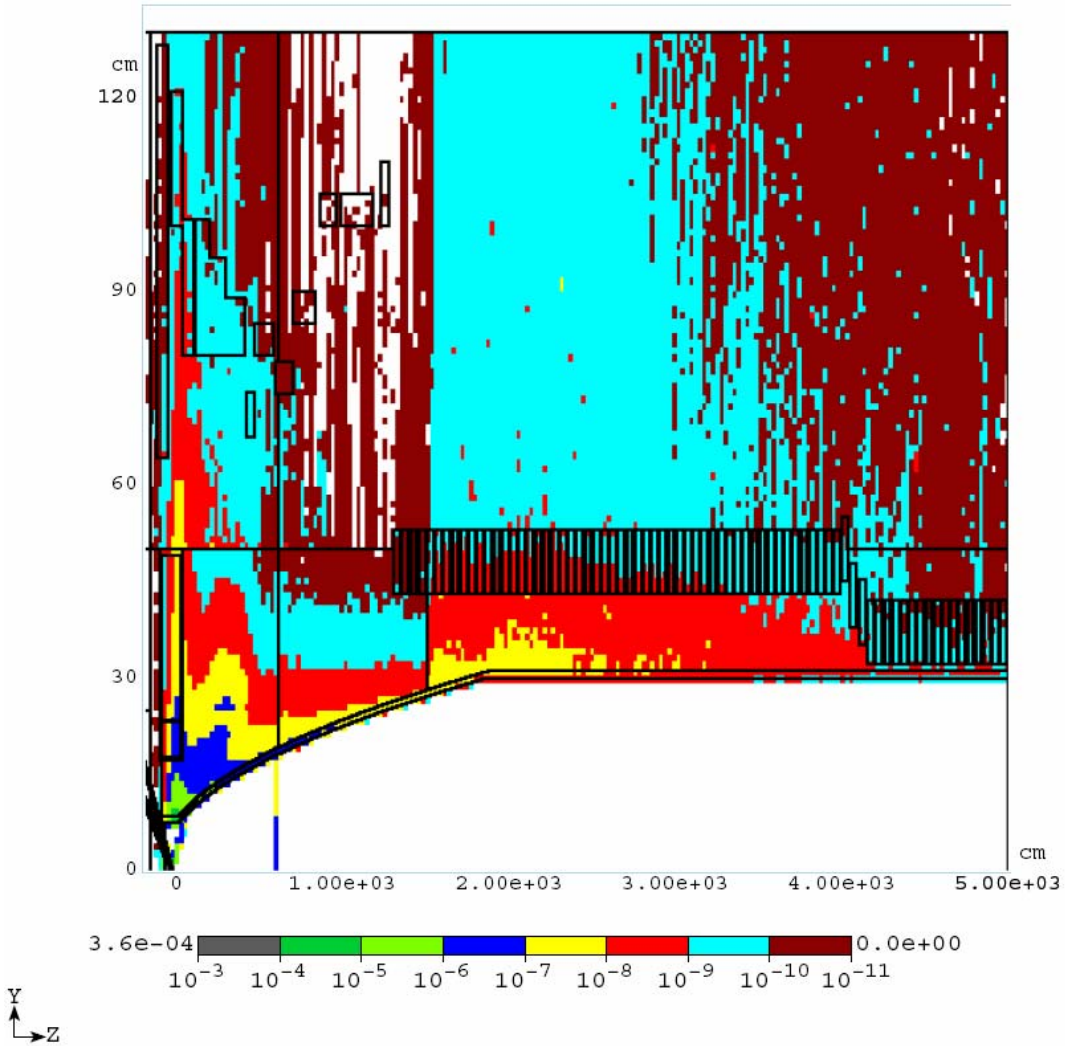
Dose for latest SC configuration

Peak energy deposition in SC coils now is ~ 1 MGy/yr

The SC lifetime is ~ 100 years



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